Problem

Do people work better in groups or by themselves?

Introduction

Have you ever wondered why so many teachers assign group projects? I have. I designed this experiment because I wanted to see whether scores are better when one works alone or as a group. I also wanted to see whether the results varied between boys and girls.

Background Information

It is often said that two heads are better than one, by which people usually mean that working with others should produce better judgments than when working alone. But is this always the case? Are there times when working together can actually make a wrong answer more likely? We do a lot of group projects and it seems like sometimes one person ends up doing most of the work while the other person gets the same grade. It doesn’t seem fair sometimes, and it doesn’t seem like the second person is learning as much as they would if they were alone. In psychology this is called Social Loafing: riding on other peoples’ coattails in a group project when you’ll get a good grade even if you don’t work. But I’ve also seen times when two people that don’t know much work together and end up making each other more ignorant. It seems like if one person is sure of a wrong answer, they can make other people also believe the wrong answer. So pairing two people may not always produce better work.

My dad helped me find a research study that looked at whether two heads are better than one (Puncochar and Fox, 2004). They reviewed research that showed groups tend to be more accurate than individuals on hard problems. They conducted some studies and showed that not only will groups get more right, but often they will come to firmly believe a wrong answer just because the group decided on it. In fact, the individual would be much more confident in a wrong answer than they would in a right answer. I decided to look and see if boys were better at working together than girls, and if it made a difference whether they were working on Math or Verbal problems, since it is often believed that girls are better at Verbal problems than Math problems.

Hypothesis

I predicted that both boys and girls would work better as a group.

Materials

* 10 individual tests
* 10 group tests
* 1 scored group test
* Grading sheet
* Pen
* Pencils
* Stopwatch

Procedure

* Get ten boys and ten girls
* Test boys alone
* Test boys as a group
* Grade
* Test girls alone
* Test girls as a group
* Grade
* Compare scores
* Gather data
* Write up report
* Return tests to participants

Results

Boys individual Range: 0-7

Boys’ average individually: 3.3/12 27.5%

Boys score as a group: 8/12 66 2/3 %

Girls individual range: 0-3

Girls’ average individually: 2.1/12 17.5%

Girls’ score as a group: 3/12 25%

Observations

Boys

Individuals

* Talking & couldn’t understand the words
* Whispers heard
* Some tried to work together…I stopped them
* One tried to turn his in after a couple of minutes
* After 3 minutes one refused to work & started to pose for the camera
* After seven minutes majority became restless
* Tried to read/ use ipods
* One used ipod throughout despite being asked not too…others stopped
* One left for office after ten minutes, but test was finished and he returned
* Finished completely in 11 minutes

Group

* Fought over master sheet
* Some stood around master sheet
* Read aloud
* Discussed every question
* Brian stabbed Caleb with a pencil
* Discussed some correct answers they later changed
* Did all seemingly indifferent
* Finished in 6 minutes

Girls

Individuals

* One tried to turn hers in after a couple of minutes
* Not sure of words
* Whispers…but much quieter than boys
* Some chewing gum
* No photos
* A TON OF DOODLING
* Wrote notes on others papers…asked not too
* Wanted to beat boys, but low confidence
* Finished in 9 minutes

Group

* Read aloud
* No fighting over master sheet
* Some stood around master sheet
* Asked for calculator…refused
* One just sat there and didn’t participate
* Two got up to get hand sanitizer
* Some drew on faces with pencil
* Giggles

Afterwards for All

Every person who wrote down the steps for one specific problem answered it correctly

Conclusion

My hypothesis was correct. Both the girls and the boys improved when working in a group. The boys, however, improved much more. They also had a higher individual score.

Possible Causes of Error

Girls and Boys were tested on different days at different times

All the boys were in the higher math class, some girls were not

Further Research

It would be interesting to see which problems girls and boys were better at—verbal or mathematics.

References

CollegeBoard. "Question of the Day." SAT. February 21, 2011. sat.collegeboard.com/practice/answered-question-of-the-day?src=E&questionId=20110222&answerCd=C&ep\_ch=QD&ep mid=6810678&ep\_rid=19482901 (accessed February 15, 2011).

Meltzoff, J.   (2008)   *Critical thinking about research: Psychology and related fields.*   Washington, DC:   American Psychological Association

Puncochar, J & Fox, P. (2004) Confidence in Individual and Group Decision Making: When “Two Heads” Are Worse Than One. *Journal of Educational Psychology*, 96 (3), 582-591.